

United States Court of Appeals  
FOR THE DISTRICT OF COLUMBIA CIRCUIT  
Argued September 4, 1996 Decided November 1, 1996

No. 95-1249

DITHIOCARBAMATE TASK FORCE,  
PETITIONER

v.

ENVIRONMENTAL PROTECTION AGENCY, ET AL.,  
RESPONDENTS

UNIROYAL CHEMICAL COMPANY, INC., AND  
ZENECA, INC.,  
INTERVENORS

Consolidated with  
Nos. 95-1251, 95-1253, 95-1255

On Petitions for Review of an Order of the  
Environmental Protection Agency

*Bethami Auerbach* argued the cause for petitioner Dithiocarbamate Task Force, et al. *Lynn L. Bergeson*, *Aaron Goldberg* and *Ann Claassen* were with her on the briefs. *Seth A. Goldberg* argued the cause for petitioner Troy Chemical Corporation. *Anita G. Fox* was with him on the briefs. *Michael W. Steinberg* argued the cause for petitioner Zeneca, Inc. *Hunter L. Prillaman*, *J. Daniel Berry* and *Mark A. Greenwood* were with him on the briefs.

*Alan J. Birnbaum* and *Cecilia E. Kim*, Attorneys, United States Department of Justice, argued the cause for respondents. *Lois J. Schiffer*, Assistant Attorney General, and *Alan H. Carpien*, Attorney, United States Environmental Protection Agency, were with them on the brief. *Christopher S. Vaden*, Attorney, United States Department of Justice, entered an appearance.

Before: EDWARDS, *Chief Judge*, WILLIAMS and RANDOLPH, *Circuit Judges*.

Opinion for the Court filed by *Circuit Judge* WILLIAMS.

WILLIAMS, *Circuit Judge*: This consolidated case concerns four classes of carbamate compounds—carbamates proper, carbamoyl oximes, thiocarbamates and dithiocarbamates (collectively "carbamates")—whose similar names reflect similarities in their chemical origins and structures. All are derivatives of carbamic acid. Carbamates and derivative products are used as

pesticides, herbicides and fungicides; they are also used in various ways by the rubber, wood and textile industries. In the rulemaking giving rise to this lawsuit the Environmental Protection Agency listed many of these carbamate-based products, as well as waste streams generated in carbamate-based production processes, as hazardous wastes under the Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901-6992k ("RCRA") (1994). Petitioners, the Dithiocarbamate Task Force (treated collectively with intervenor Uniroyal Chemical Co. as "DTF" or the "Task Force"), Zeneca Inc., and Troy Chemical Corp., are (or represent) manufacturers who make various carbamate-based products or use carbamates in their production processes. They challenge a portion of these listings as arbitrary and capricious.

Because we find that in promulgating some of the challenged rules EPA failed to meet the minimum standard required of it by the Administrative Procedure Act, see 5 U.S.C. § 706(2)(A) (1994), we vacate in part and affirm in part.

\* \* \*

*Statutory and Regulatory Authority:* RCRA, enacted in 1976, directs the EPA to promulgate criteria for identifying and listing hazardous wastes, "taking into account toxicity, persistence, and degradability in nature, potential for accumulation in tissue, and other related factors such as flammability, corrosiveness, and other hazardous characteristics." 42 U.S.C. § 6921(a). In 1980 EPA issued rules for identifying hazardous wastes, along with its first list of wastes subject to RCRA.<sup>1</sup> See Hazardous Waste Management System: Identification and Listing of Hazardous Waste, 45 Fed. Reg. 33,084-33,137 (May 19, 1980) (codified as amended at 40 CFR Part 261) (hereinafter,

---

<sup>1</sup>The statute defines hazardous waste as

a solid waste, or combination of solid wastes, which because of its quantity, concentration or physical, chemical or infectious characteristics may—

(A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or

(B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

42 U.S.C. § 6903(5).

"Identification of Hazardous Waste"). Those rules remain in force today, with minor adjustments.

The rules lay out three different routes to listing a substance as a hazardous waste, of which the third is of primary relevance here. Under it a waste can be listed as hazardous if it satisfies two conditions:

[1] It contains any of the toxic constituents listed in appendix VIII [to 40 CFR Part 261] and [2] after considering the following factors [listed below], the Administrator concludes that the waste is capable of posing a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of or otherwise managed.

Identification and Listing of Hazardous Waste, 40 CFR § 261.11(a)(3) (1995) (bracketed material added). The first step in the process, adding chemicals to appendix VIII, is to occur "only if [the chemicals] have been shown in scientific studies to have toxic, carcinogenic, mutagenic or teratogenic effects on humans or other life forms." *Id.* In the second step, the Administrator is to consider the following factors:

- (i) The nature of the toxicity presented by the constituent.
- (ii) The concentration of the constituent in the waste.
- (iii) The potential of the constituent or any toxic degradation product of the constituent to migrate from the waste into the environment under the types of improper management considered in paragraph (a)(3)(vii) of this section.
- (iv) The persistence of the constituent or any toxic degradation product of the constituent.
- (v) The potential for the constituent or any toxic degradation product of the constituent to degrade into non-harmful constituents and the rate of degradation.
- (vi) The degree to which the constituent or any degradation product of the constituent bioaccumulates in ecosystems.
- (vii) The plausible types of improper management to which the waste could be subjected.
- (viii) The quantities of the waste generated at individual generation sites or on a regional or national basis.
- (ix) The nature and severity of the human health and environmental damage that has occurred as a result of the improper management of wastes containing the constituent.
- (x) Action taken by other governmental agencies or regulatory programs based on the health or environmental hazard posed by the waste or waste constituent.

(xi) Such other factors as may be appropriate.

*Id.*

Once the EPA decides to list a waste as hazardous, the substance is assigned a particular code and included in the appropriate lists in Subpart D of Part 261. Wastes generated by manufacturing processes are listed as K wastes. Chemical products or manufacturing chemical intermediates that are hazardous if they are discarded or intended to be discarded are listed as P or U wastes, the P designation being reserved for "acute hazardous wastes" of this type. (EPA made 18 P listings in this rulemaking but none is disputed here.)

Listing has significant consequences. Any hazardous waste is subject to precisely prescribed rules on disposal, see, generally, 40 CFR Part 264, record-keeping (covering both makers and users), see, generally, *id.* Part 262, and transport, see, generally, *id.* Part 263. In addition, hazardous wastes listed under RCRA or exhibiting one or more of the characteristics of a listed RCRA hazardous waste are considered hazardous substances under the regulatory scheme set up by the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), 42 U.S.C. §§ 9601-9675 (1995). See *id.* § 9601(14)(C). CERCLA requires that every release of a hazardous substance above a specified level, known as the reportable quantity ("RQ"), be reported to the National Response Center and to state and local authorities. The EPA set the RQ for all the hazardous wastes we consider here at one pound, the statutory fallback level, *id.* § 9602(b), pending further study.

*The Present Rulemaking:* Invoking its authority under 40 CFR § 261.11(a)(3), EPA proposed to list six K wastes and 70 P and U wastes, running the gamut of the carbamate industry. In addition, the agency proposed to list four generic U wastes that would cover any substance that could be classified as one of the four kinds of carbamates. The Agency also proposed to add to Appendix VIII of Part 261 each of the chemical constituents that were the basis of the proposed listings, which in the case of the P and U listings were the products or manufacturing chemical intermediates themselves.<sup>2</sup> Proposed Rule: Carbamate Production Identification and Listing of Hazardous Waste,

---

<sup>2</sup>For the remainder of the opinion we use the term "product" to encompass "manufacturing chemical intermediates." See Proposed Rule, 59 Fed. Reg. at 9811/2.

59 Fed. Reg. 9808 (March 1, 1994).

The final rule differed from the proposal only slightly. In response to comments, the EPA said it would not list the four generic U wastes. It also decided not to make 12 of the proposed U listings because of insufficient toxicity data. Based on a re-analysis of the toxicity data it did have, EPA moved four chemicals from the P listings for acutely hazardous substances to the U listings. The K listings, aside from some tinkering with special exemptions not at issue here, remained essentially unchanged. The result was that 40 carbamate industry products received U listings, 18 received P listings and all 58 were listed on Appendix VIII. In addition, manufacturers involved in each of the four classes of carbamates had at least one production waste stream listed as a K waste. Final Rule: Carbamate Production Identification and Listing of Hazardous Waste, 60 Fed. Reg. 7824, 7825-7827 (Feb. 9, 1995).

\* \* \*

*The U Listings:* Of the 40 products listed as U wastes, DTF challenges the listing of 17 dithiocarbamates,<sup>3</sup> Zeneca the listing of six of its thiocarbamate products,<sup>4</sup> and Troy the listing of its product, IPBC, U375, a carbamate proper.

Petitioners' first line of attack is on the EPA's adding items to Appendix VIII and listing them pursuant to 40 CFR § 261.11(a)(3), all in one rulemaking rather than two. They do not, however, point to any language in § 261.11(a)(3) suggesting any requirement of sequential listing. Nor do they identify any way in which the EPA's consolidated process might jeopardize their rights or increase the risk of error. Petitioners also claim that it is unreasonable for EPA to consider aquatic toxicity data, or the harm caused to aquatic environments, in making Appendix VIII listings or the actual hazardous waste listings we consider below. But they point to nothing in the regulations or the statute that prevents EPA from considering the harm to organisms other than mammals or land-based creatures.

---

<sup>3</sup>They are, according to their listing in the Rule: U400, U393, U366, U403, U396, U384, U376, U383, U378, U377, U379, U381, U382, U277, U402, U401, U407.

<sup>4</sup>They are: U392, U386, U390, U365, U391, U385.

Second, petitioners argue that in making the determination necessary in the second step of a § 261.11(a)(3) listing—determining "that the waste is capable of posing a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of or otherwise managed"—EPA did not consider all of the 11 specified factors. (There are really only ten, since the final factor is a catch-all, allowing the Administrator to consider any other factor she finds relevant.) EPA argues both that § 261.11(a)(3) does not require the Administrator to consider all ten factors, and that in any event she did consider them.

The theory that § 261.11(a)(3) does not require consideration of the ten factors defies the language of the rule, which we have already quoted. Its structure is simple. Given an Appendix VIII listing, the Administrator is to make a determination about "hazard to human health or the environment," and is to do so "after considering" the named factors. EPA, indeed, makes no effort to parse the language to yield a different result. It cites *NRDC v. EPA*, 25 F.3d 1063 (D.C. Cir. 1994), in support of its reading, but *NRDC* merely upheld EPA's discretion to "emphasize or deemphasize particular factors," *id.* at 1071, and carefully noted that petitioners there did "not contend that the Administrator failed to consider the relevant factors...." *Id.*

Moreover, the structure of 40 CFR § 261.11(a) forbids EPA's reading. Section 261.11(a)(2), the second of three routes to listing a substance as hazardous, states specific toxicity criteria; if a substance exceeds the specified levels, it is to be listed, pure and simple. If EPA were able to list substances that exhibited toxicity *below* the § 261.11(a)(2) thresholds without examining the ten factors and making an overall assessment of the hazards posed by improper management (or doing so only as whimsy moved the agency), the brightline sense of § 261.11(a)(2) would be completely undercut. In fact, this rulemaking underscores the structural point. EPA calculated the aquatic toxicity levels for most of the chemicals it listed and found those levels—which were high, but not within the criteria stated in § 261.11(a)(2)—to be the most significant factor in its decision to make the listings. See 60 Fed. Reg. at 7838/1.

EPA points to prior statements that § 261.11(a)(3) requires it to consider only "appropriate factors", see Identification and Listing of Hazardous Waste, 55 Fed. Reg. 18,726 (May 4, 1990)

(technical amendment to 40 CFR § 261.11(a)(3)), or "relevant factors", see Identification and Listing of Hazardous Waste, 57 Fed. Reg. 12, 13 (Jan. 2, 1992) (final rule), arguing that these reflect a past practice that is consonant with, and vindicates, the interpretation it asserts here. But neither of these statements adopts the position we understand EPA to argue before us, namely, that it may simply disregard a factor without a word as to *why* it is irrelevant or unimportant.

Accordingly, despite the great deference we owe an agency in the interpretation of its own regulations, see *Udall v. Tallman*, 380 U.S. 1, 4 (1965), we must apply the regulation's specific language over the agency's current interpretation.

If EPA finds a factor to be irrelevant or unimportant in a particular listing, of course, that finding would be subject to very deferential review. But with no such finding, the court has no reason to suppose that the agency considered each factor, as required by its own regulation.

Almost as an afterthought, EPA argues in its brief that it did consider all the factors in § 261.11(a)(3). At oral argument, counsel for EPA acknowledged that EPA did not consider each factor for each of the products listed, but at most considered them in the aggregate, for each of the four classes of chemicals. Where it is reasonable to consider the factors in relation to a class of chemicals, EPA may do so. As we develop below in connection with the K wastes, that means essentially that if the known similarities of members of a class are such that it is reasonable to infer the presence of a disputed characteristic throughout the class (not just among members for which it has been shown), the EPA is free to draw that inference. Thus, if the agency is considering a class  $A_{i-n}$ , and members  $A_{i-iv}$  exhibit a specific attribute, and there is reason to believe that they do so because of some trait shared by the whole class, then the agency may draw the inference that all the members of the class exhibit the attribute.

EPA makes two generalizations in its analysis of the U wastes. For some of the § 261.11(a)(3) factors, EPA assumed that it could impute the character of some products to all other products. See Proposed Rule, 59 Fed. Reg. at 9821/2-3. For other factors, it borrowed from the analysis of the K wastes, as it had conducted field studies relating to the latter but none directly applicable to the products.

Underlying all of EPA's generalizations is the premise that within the four groups, the chemicals have similar structures and therefore similar toxicological effects. See Final Rule 60 Fed. Reg. at 7827/2; Proposed Rule, 59 Fed. Reg. at 9840/3. At least at some level of generality, we do not understand petitioners to quarrel with the principle that structural similarities in chemicals imply at least some probability of similar attributes. What they do challenge is the legitimacy of the class-wide inferences that EPA makes in considering virtually every factor.

Initially EPA proposed not only individual U listings for identified substances but also a generic U listing for all four classes of chemicals, on the ground that such chemicals were "structurally similar" and "[a]s a group ... exhibit significant toxicity to a number of organisms." See Proposed Rule, 59 Fed. Reg. at 9840/3. In the final rule, however, EPA concluded that its categories "may be overly broad," Final Rule, 60 Fed. Reg. at 7827/1; see also *id.* at 7838/1-2, and abandoned its proposal for generic U listings "until alternative listing descriptions have been proposed and commented on...." *Id.* at 7838/2. Nonetheless, the EPA soldiered on with its class-based approach in making the specific U listings.

EPA's class-based approach allowed it successfully to consider two of the listed factors, "nature of the toxicity" and "concentration," factors (i) and (ii), see Proposed Rule, 59 Fed. Reg. at 9840/1, and petitioners offer no convincing reason to doubt that these may be considered across all products, with the exception of IPBC, U375, discussed below in connection with K156, 157 & 158.<sup>5</sup> As to quantities of U wastes generated, factor (viii), EPA addressed it only in a discussion of the economic impact of the rule, referring to a total quantity of 40 metric tons, see Final Rule, 60 Fed. Reg. at 7847/2, which compares with 841,000 metric tons of waste generated as K wastes, see Proposed Rule, 59 Fed. Reg. at 9815 (Tables 8 and 9). Its discussion of other regulatory controls, factor (x), is exceptionally sketchy, considering that most of the substances listed as U wastes are extensively regulated under the Federal Insecticide Fungicide and Rodenticide Act ("FIFRA"), 7 U.S.C. § 136 (1995). Although EPA pointed out that RCRA regulation will not totally duplicate FIFRA regulation, since RCRA regulation exempts *household* users while FIFRA causes the issuance

---

<sup>5</sup>See also discussion below of critiques as to the toxicity of K161.

of disposal instructions "to *all* users," see Response to Comments at 66 (emphasis added), the agency's response leaves unclear what the advantage is in covering non-household users twice.

Foremost in our review, however, is EPA's consideration of mismanagement, the defects of which, as we shall see, interact with, and aggravate, the meagerness of the discussion of non-RCRA regulatory controls. Mismanagement is not only specifically listed among the numbered factors, "plausible types of improper management to which the waste could be subjected", factor (vii), but is also an aspect of two others: "[t]he potential of the constituent or any toxic degradation product ... to migrate ... into the environment" under improper management, factor (iii), and the "nature and severity of the human health and environmental damage ... as a result of the improper management of wastes ...," factor (ix). More important, the very question that the ten factors of § 261.11(a)(3) are supposed to help answer—the hazard posed by the substance—is explicitly phrased in terms of improper management. That language in turn echoes the statutory definition, which (in one of its aspects) looks to whether the substance will "pose a ... substantial present or potential hazard to human health or the environment when *improperly* treated, stored, transported, or disposed of, or otherwise managed." 42 U.S.C. § 6903(5)(B) (emphasis added). EPA, in turn, said in promulgating § 261.11(a)(3) that it would not consider a substance to pose a "substantial" hazard unless the possibility of mismanagement were plausible. See Identification of Hazardous Waste, 45 Fed. Reg. at 33,113/2. And we have insisted that the agency "provide at least some factual support" for a conclusion that a particular mismanagement scenario is plausible. *Edison Electric Inst. v. Environmental Protection Agency*, 2 F.3d 438, 446 (D.C. Cir. 1993). Again, one should bear in mind that the ultimate question under § 261.11(a)(3), once listing under Appendix VIII has occurred, is whether the waste poses a "substantial" hazard in light of the various possibilities of improper management.

Most of what the EPA had to say on the subject of mismanagement regarding the U wastes seemed to amount to an assertion of the obvious: accidents will happen. Of course—but if that constituted "plausible mismanagement", see § 261.11(a)(3)(vii), it would be ubiquitous and therefore unnecessary to be considered in a listing, contrary to the express language of § 261.11(a)(3). For

specifics, EPA relied heavily on a train wreck in California that spilled a dithiocarbamate (metam-sodium) into a river and so caused environmental destruction. See Proposed Rule, 59 Fed. Reg. at 9821/3-22/1. DTF argues that listing would have no *direct* effect on the likelihood of such spills, because the train's handling would in any event have been governed by Department of Transportation regulations. EPA resists that claim, arguing that under § 261.11(a)(3), "[T]he proper inquiry is not whether Subtitle C or other regulatory controls would prevent environmental harm, but whether the substances are *capable* of posing a hazard *if* improperly treated, stored, transported, disposed of or otherwise managed." Respondent's Brief at 40. But even if that be the correct reading of the express reference to mismanagement in § 261.11(a)(3)(vii), DTF's argument would necessarily come back in through factor (x), which looks to the relationship between RCRA regulation and the existing regulatory matrix, presumably with the intention of assuring that products will be listed only where doing so will yield some incremental benefit.

EPA further argues that accidents such as the metam-sodium train spill are relevant to RCRA because listing a product as a hazardous waste is likely to make handlers more careful. Perhaps, but not necessarily. The EPA itself noted in another context that RCRA listing might actually result in a stigma, leading to subterfuge of regulations, see *Hazardous Waste Treatment Council v. EPA*, 861 F.2d 270, 272, 275-76 (D.C. Cir. 1988) (recognizing the phenomenon but finding that EPA could not consider it under the particular statute at issue), and a commenter in this rulemaking made the same point. See Troy Comments at 12. As EPA never responded, we have no clue as to its official view of the matter. "[W]e may not supply a reasoned basis for the agency's action that the agency itself has not given." *Motor Vehicle Manufacturers Ass'n v. State Farm Mutual Insurance Co.*, 463 U.S. 29, 43 (1983).

EPA also cited references to sales of carbamate product as distressed freight, i.e., freight which has been unclaimed or damaged in some way, see Response to Comments at 97, but it is unclear why such sales, not actually shown to involve harm or even a serious probability of harm, are evidence of "plausible types of improper management." See § 261.11(a)(3)(vii).

EPA's effort to generalize from its best evidence of mismanagement, its discussion of bird kills

resulting from the "use or possible misuse" of carbofuran, a carbamate proper, see Proposed Rule, 59 Fed. Reg. at 9821/3, is more convincing. Most of these products are herbicides, fungicides and insecticides spread into the environment for agricultural purposes, see Proposed Rule, 59 Fed. Reg. at 9811/1, with the notable exception of Troy's IPBC, U375, which is used as an additive in small amounts to wood preservation finishes, Troy Comments Under Seal at 12. But EPA's own formulation here, alluding equally to "use or possible misuse," indicates that EPA has expanded the concept of mismanagement to embrace any uses of the chemical, such as spraying on crops. See also Background Document: Assessment of Risks from the Management of Carbamate Wastes at 15-26 (Final Report) (background document failing to distinguish among use, misuse and simple accidents). Again factor (x)'s reference to other regulatory measures is pertinent. Hazards from the proper use of such chemicals might justify a ban under FIFRA, 7 U.S.C. § 136a(c)(5)(D) (requiring, as predicate to registration of a pesticide, determination that "when used in accordance with widespread and commonly recognized practice it will not generally cause unreasonable adverse effects on the environment"), but that is not the purpose of RCRA. Outside the area of increases in mortality or serious illnesses, see 42 U.S.C. § 6903(5)(A), which EPA does not appear to invoke here, the statute is concerned with the hazards of a substance when "*improperly* treated, stored, transported, or disposed of, or otherwise managed." *Id.* at § 6903(5)(B) (emphasis added).

To summarize: EPA's discussion of the quantities of waste is slight and oblique, but we need not consider whether such an inadequacy would require us to vacate the rule. Where EPA falls down completely is on the interlocked topics of other regulatory controls (factor (x)) and mismanagement (factor (vii)). It is tempting to say that the toxicity of these chemicals alone marks them as hazardous, and, of course, in one of the purely colloquial senses of the word, they are. But 40 CFR § 261.11(a)(2) gives explicit toxicity benchmarks that are not satisfied here. That relationship underscores what would be true anyway—that a failure on EPA's part to give serious consideration to the "softer" variables of § 261.11(a)(3) tends to turn its application of that section into an exercise in totally standardless discretion. Accordingly, we vacate the challenged U listings as arbitrary and capricious.

*The K-Wastes:* In analyzing EPA's approach to the K waste listing, we first note the operation of § 261.11(b), which allows the agency to list classes of wastes which "typically or frequently are hazardous under the definition of hazardous waste found in" RCRA. (EPA did not suggest that this provision applied to the listing of the U wastes; although EPA claimed to consider the factors in § 261.11(a)(3) by class, each U waste was given an individual listing. Each of the K waste listings, however, was of a class, covering waste streams from the production of a variety of products.) At oral argument counsel for EPA conceded, correctly we think, that the section does not supply an independent basis for listing, but simply reiterates the truism that regulation by class of substance is appropriate in the cases where the evidence, including of course inferences from relevant similarities of members of the class, is strong enough. As EPA said in promulgating § 261.11(b), it would be appropriate to list as a class "those wastes which demonstrate a reasonable likelihood of hazard as a class," noting that the agency would have to demonstrate that "sufficient uniformity exists or is likely to exist." Identification of Hazardous Waste, 45 Fed. Reg. at 33,114/3. We reject petitioners' claims insofar as they contest this principle.

EPA gathered data for its analysis of the K wastes by sending questionnaires to all manufacturers in the carbamate industry and sampling the waste streams at the eight largest facilities (representing about 89% of the industry's total production). It divided the waste streams into ten groups, constructing a composite, or model, waste stream for each. After a Risk Assessment, it concluded that six of the ten should be listed. The six are described in the final rule as follows:

K156: Organic waste (including heavy ends, still bottoms, light ends, spent solvents, filtrates, and decantates) from the production of carbamates and carbamoyl oximes.

K157: Wastewaters (including scrubber waters, condenser waters, washwaters, and separation waters) from the production of carbamates and carbamoyl oximes.

K158: Bag house dusts and filter/separation solids from the production of carbamates and carbamoyl oximes.

K159: Organics from the treatment of thiocarbamate wastes.

K160: Solids (including filter wastes, separation solids, and spent catalysts) from the production of thiocarbamates and solids from the treatment of thiocarbamate wastes.

K161: Purification solids (including filtration, evaporation, and centrifugation solids), bag house dust and floor sweepings from the production of dithiocarbamate acids and their salts.

Final Rule, 60 Fed. Reg. at 7849.

EPA conducted field studies of actual waste streams and performed a risk analysis specific to the waste streams. It pointed to similarities in production processes that support a class-based approach to the various segments of the industry. See Proposed Rule, 59 Fed. Reg. at 9811/1-2; Final Rule, 60 Fed. Reg. at 7835/1-2. It also identified constituents of concern in each waste stream. See Proposed Rule, 59 Fed. Reg. at 9814 (Table 7); *id.* at 9815/3. This is a reasonable approach—up to a point. Where EPA is confronted with evidence challenging its classification, it must respond, either by altering the class or by reasonably defending its choices. See *International Harvester Co. v. Ruckelshaus*, 478 F.2d 615, 632 (1973) ("We are beset with contentions of petitioners that bear indicia of substantiality. Yet we have no EPA comment on the specific questions raised....").

*K161*: At a certain level of generality, one may say that, in listing K161 (various solid wastes from dithiocarbamate production), EPA identified Appendix VIII constituents in the waste stream and considered the ten factors through its risk analysis. Proposed Rule, 59 Fed. Reg. at 9817-9837.<sup>6</sup> DTF objects on a number of scores. It says that in its assessment of factor (vi), bioaccumulation, EPA wrongly relied on a 60-day study of the toxic effects of the waste stream on trout, while a four-day study is "the preferred benchmark." Task Force Comments at 78. But this provides us no basis to set aside EPA's judgment. Unless DTF showed that EPA had committed itself to four-day

---

<sup>6</sup>Consideration of the factors in relation to dithiocarbamates appears as follows: Factor (i), see Final Rule, 60 Fed. Reg. at 7835/3 ("acute aquatic toxicity in a narrow range"); factor (ii), see Proposed Rule, 59 Fed. Reg. at 9817 (Table 10—Range of Concentrations for Constituents of Concern; Waste stream 9); factor (iii), see Proposed Rule, 59 Fed. Reg. at 9822/1-3 (mobility); factor (iv), see Proposed Rule, 59 Fed. Reg. at 9823 (Table 13—Persistence of Constituents of Concern); factor (v), see Proposed Rule, 59 Fed. Reg. at 9823/3 (dithiocarbamates decompose into dangerous substances); factor (vi), see Proposed Rule, 59 Fed. Reg. at 9832/3 (bioconcentration risks); factor (vii), see Proposed Rule, 59 Fed. Reg. at 9825/2 (discussion of management in unlined landfills); factor (viii), see Proposed Rule, 59 Fed. Reg. at 9814/3-9815 (Tables 8 and 9) (annual quantities of various wastes); factor (ix), see Background Document at 16-17 (reviewing symptoms of carbamate poisoning); factor (x), see Final Rule, 60 Fed. Reg. at 7836/1 (assertion of gaps in other regulation).

studies, or that use of a 60-day study was plainly inappropriate for some scientific reason, the issue is up to the agency. See Response to Comments at 134 (finding the 60-day study "the most protective for this application").

DTF also objects to the EPA's consideration of mismanagement for K161, arguing that the train spill cannot be considered as mismanagement for the waste stream. We agree with EPA that the Task Force misunderstood the consideration of mismanagement for K161. EPA's assumed mismanagement scenario was based on treatment in unlined landfills, see Proposed Rule, 59 Fed. Reg. at 9825/2, which seems plausible as EPA's survey indicated that most of the industry manages this waste stream as non-hazardous. See *id.* at 9815 (Table 9) (indicating use of subtitle D landfills).

DTF's most strenuous challenge is to EPA's finding of reactivity throughout the class of dithiocarbamate wastes; if valid, the challenge would undermine EPA's ability to draw inferences from the modeled waste stream applicable to the entire class. See, e.g., Final Rule, 60 Fed. Reg. at 7836/1. DTF points to a study submitted by one of its members, R.T. Vanderbilt Co., which demonstrated that certain kinds of dithiocarbamates, specifically N,N-disubstituted dithiocarbamates, are not reactive since they do not produce hydrogen sulfide under the conditions prescribed by the EPA (namely, pH conditions from 2 to 12.5, see 40 CFR § 261.23(a)(5)). See Comments of R.T. Vanderbilt at 1. EPA responded that the challenged dithiocarbamates can still be considered reactive as the Vanderbilt data showed that dithiocarbamates produce carbon disulfide, which is also highly toxic. See Final Rule, 60 Fed. Reg. at 7835/3-36/1. DTF has not provided us with any basis for rejecting that conclusion. The Task Force also asserted that EPA failed to show that carbon disulfide would be present "in a quantity sufficient to present a danger to human health and the environment," Task Force Comments at 43, echoing the language of 40 CFR § 261.23(a)(5), which relates to the definition of "reactivity" for purposes of a listing under 40 CFR § 261.11(a)(1). EPA's response was that carbon disulfide would be toxic even if diluted 100 fold. See Final Rule, 60 Fed. Reg. at 7836/1. Although the answer is not self-evidently responsive, DTF's brief has not clearly put in issue the exact nature of the considerations of "quantities of the waste" that are relevant under § 261.11(a)(3)(viii), so we cannot fault EPA on this record.

The Task Force makes a number of other arguments as to the soundness of EPA's extending its findings to all the dithiocarbamate wastes encompassed by K161, saying, for example, that EPA's reliance on the presence of heavy metals is wrong because not all dithiocarbamate waste streams contain heavy metals and that, even among those that do, the toxicity varies according to the actual metal. See Task Force Comments at 30-31. The Task Force also argues that certain decomposition products, methylisothiocyanate and N-nitrosodimethylamine, are not likely to be produced by N,N-disubstituted dithiocarbamates. See Task Force Comments at 43-45. EPA has pointed to various responses that it gave. See, e.g., Response to Comments at 51, 55. Although these are in certain respects vague, they are not responses that—without more ammunition from the petitioners—we can call arbitrary or capricious. Accordingly, with a good deal of hesitation, we must uphold the listing of K161.

*K160*: Zeneca, the only maker of thiocarbamates, challenges the K160 listing for solid thiocarbamate wastes. Zeneca's attack takes two forms. First, it objects to EPA's inclusion of its wastewater treatment sludge within the K160 listing. Second, it attacks the K160 listing as being based on an arbitrary mismanagement premise. In fact it is unclear whether Zeneca's wastewater treatment sludge is covered by the K160 listing, but we need not address that issue because we must vacate the listing.

EPA assumed that the solid thiocarbamate wastes would be dumped in unlined landfills, see Proposed Rule, 59 Fed. Reg. at 9838/3; see also *id.* at 9825/2, even though its understanding at the time was that Zeneca was putting its waste in lined landfills meeting the requirements of Subtitle C of RCRA. See *id.* at 9815 (Table 8) (waste stream #6). EPA defends this mismanagement scenario as plausible, arguing that unlined landfills had been used in the past and that it had no way of knowing if Zeneca would continue to ship its waste to lined landfills. See Proposed Rule, 59 Fed. Reg. at 9825/2.

Of course complete certainty is not possible. But on a parallel issue, deciding not to list wastewaters from the production of thiocarbamates and dithiocarbamates, regardless of past disposal practices, EPA reasoned "that since the carbamate manufactures [sic] have already made a

considerable investment in wastewater treatment systems using tanks, [EPA believes] they will continue to use them." Final Rule, 60 Fed. Reg. at 7831/3. The Agency also stated that the past management practice is unlikely to be repeated as "permitting authorities are strongly biased against" it. *Id.* EPA has sought to distinguish that reasoning, on the ground that here the use of high-quality landfills may not represent any capital investment by Zeneca. But the probative fact for the thiocarbamate and dithiocarbamate wastewater was surely not the sunk costs, which cannot properly guide a firm's future allocation of resources, but the fact that its behavior showed that, without a hazardous waste listing, the relevant firms had found it sensible, taking into account all relevant costs and benefits (including litigation risks averted), to adopt adequate disposal methods. The point is equally probative that Zeneca will continue in its practice, and that, if new firms enter the industry, they will follow suit. Because EPA failed to identify a plausible mismanagement scenario, we vacate the listing of K160.

*K156, K157 and K158:* IPBC is a carbamate proper, and wastes generated by its production are included in the EPA's definitions of K156, K157 and K158. Troy Chemical, the only maker of IPBC, objects to its inclusion in those wastes, saying that EPA's assumptions both as to the scientific characteristics and the potential mismanagement of the class do not apply to IPBC, and that EPA disregarded its evidence to that effect. We agree.

EPA responded to some of Troy's evidence about the comparatively innocuous character of IPBC. For example, faced with data undermining its assumptions about IPBC's toxic effects on mammals, see Troy Comments at 7-8, it pointed to evidence of toxic effects on fish, see Response to Comments at 34. For this reason, IPBC remains listed on Appendix VIII. But Troy offered other specific evidence suggesting that its waste stream is not "typically or frequently ... hazardous," see 40 CFR § 261.11(b), in the same manner that led to the listing of the class waste streams. It cited evidence (already in EPA's files in connection with IPBC's registration under FIFRA) tending to exonerate its product under the factors made relevant by § 261.11(a)(3): evidence that it does not inhibit the enzyme acetylcholinesterase, a major basis for EPA's finding of toxicity, see Troy Comments Under Seal at 8; that it degrades rapidly and is quickly eliminated, *id.*, thereby countering

EPA's claims of persistence and degradation; and that it has little potential for bioaccumulation, *id.* EPA's justification in its brief for not responding is that Troy showed only that IPBC was *less* fraught with hazard than its cousin carbamates, and failed to show that it was "not an environmental concern." But EPA has never articulated any precise threshold of "environmental concern," below which a chemical may escape listing under § 261.11(a)(3). We do not see how an agency can *both* apply a highly discretionary test and at the same time disdain response to a party that shows that its chemical is *relatively* innocent compared to the characterizations EPA used to justify branding the related ones hazardous. Troy has shown that IPBC is different enough from other carbamates that it cannot be classified with them, absent more information from the EPA.

Moreover, in listing the IPBC-related wastes EPA assumed open-tank disposal facilities for K156 and K157 and landfill disposal for K158, see Proposed Rule, 59 Fed. Reg. at 9836/3, 9837/3, 9838/2, assumptions that seemed plausible in light of the fact that most of the industry, according to the EPA survey, engaged in these kinds of disposal practices. See *id.* at 9824 (Table 14) (waste groups 1, 2, and 3). IPBC, however, is invariably produced in a completely closed process, as Troy informed EPA and as EPA does not deny. See Troy Comments at 6. EPA acknowledged explicitly that it "believes [Troy's] current practice of recycling the K156 wastes in a closed process is likely to continue," Response to Comments at 17, but said that did not "ensure" against the possibility of changes in process that might lead to alternative methods of disposal. See *id.* at 18. Here EPA seems to have turned the mismanagement factor upside down, from an inquiry into whether dangerous mismanagement practices are "plausible," as § 261.11(a)(3)(vii) says, into an inquiry into whether they have been ruled out absolutely. This is simply disregard of the agency's own rule.

EPA also responded that "being the sole producer of a chemical does not provide a basis for exclusion...." Response to Comments at 33. Of course it doesn't. The issue is whether the agency can list a chemical if the evidence relating to that chemical exonerates it from the flaws leading the agency to classify supposedly kindred chemicals as a group. EPA offers no reason for such an extension of regulation across chemicals that are distinguishable on a key variable of listing. That the evidence happens to come from one company makes no difference.

Accordingly, the K156, K157 and K158 listings must be vacated to the extent that they include IPBC.

*Paperwork Reduction Act*

Because an agency's failure to abide by the requirements of the Paperwork Reduction Act, 44 U.S.C. §§ 3501—3520 (1995) does not prevent the promulgation of a rule, only its enforcement, see *id.* at § 3512; see also *Career College Ass'n. v. Riley*, 74 F.3d 1265, 1269 (D.C. Cir. 1996), we reject this claim.

\* \* \*

Accordingly, the rule is vacated to the extent that it lists (1) the 24 challenged U wastes, (2) K160, and (3) K wastes 156, 157 and 158 insofar as they encompass IPBC. The petitions for review are otherwise denied.

*So ordered.*